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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,782	01/12/2004	Karl-Erik Olsson	07589.0151.PCUS00	1781

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EXAMINER

HO, HA DINH

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/707,782	Applicant(s) OLSSON, KARL-ERIK	
	Examiner Ha D. Ho	Art Unit 3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 3, 6 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 7-13 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/12/04 & 6/17/04</u> | 6) <input type="checkbox"/> Other: _____ |

1/1

DETAILED ACTION

1. This is the first Office Action on the merits of Application No. 10/707,782 filed on 01/12/04. Claims 1-15 are currently pending.

Election/Restrictions

2. Applicant's election without traverse of Species 4, Fig. 5, in the reply filed on 03/18/05 is acknowledged.

3. Claims 3, 6 and 14 are withdrawn by Examiner from further consideration pursuant to 37 CFR 1.142(b) as not being directed to the elected Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 03/18/05.

Drawings

4. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 7, 9-13 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 7 recites the limitation "the element" in line 1. There is insufficient antecedent basis for this limitation in the claim.
- Claim 9 recites the limitation "the axle differential" in line 2. There is insufficient antecedent basis for this limitation in the claim.
- In claim 10, lines 1-2, the recitation of "a drive shaft" constitutes a double inclusion since "a drive shaft" was previously recited in claim 1, line 4.
- In claim 13, lines 1-2, the recitation of "a drive shaft" constitutes a double inclusion since "a drive shaft" was previously recited in claim 1, line 4.
- In claim 15, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 4, 5, 7-10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art, Figure 1 (hereafter APA), in view of Schreiner (US 4,393,952).

APA shows a vehicle having at least two pair of driving wheels (16a, 16b, 18a, 18b) of which one pair (18a, 18b) is steerable in relation to the longitudinal axis of the vehicle, the vehicle comprising a first transmission branch (the drive of the differential of the wheel axle 16, inherent) connected to a second transmission branch (the drive of the differential of the wheel axle 18, inherent) by way of a fork (connection at 13), the first transmission branch directly connected to a drive shaft (e.g., engine/transmission output shaft, inherent), and the second transmission branch connected to the fork.

APA does not show a control unit provided with control means for varying the transmission ratio in the second branch and each of a plurality of steerable wheels being connected to the drive shaft via a separated control unit.

Schreiner shows a vehicle having a pair of steerable driving wheels (13, 13') (note that the driving sprockets 13 and 13' are equivalent to driving wheels), a transmission branch (7-10, 8'-10', 14-19, 14'-19') including a control unit (14-19 and 14'-19') provided with control means (19, 19') for varying the transmission ratio in the transmission branch and each of the steerable wheels being connected to a drive shaft (4) via a separated control unit (14-19 or 14'-19').

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the second transmission branch of APA by the transmission branch (7-10, 8'-10', 14-19, 14'-19') of Schreiner so that the drive motors can be independently operated for

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adding of their rotation to or subtracting it from that of the respective output (wheels) (see abstract).

Regarding claims 4, 5 and 7-10, Schreiner shows the control unit comprising a control motor (19) configured to influence the transmission ratio of a planetary gear (7-10), the planetary gear set comprising a sun gear (10), a planet carrier (11) with planet wheels (9) and internal gear (8), a hypoid gear (5, 6), the control motor (19) connected to the sun gear (10), wherein the connection (9, 11) between the internal gear (8) and the sun gear (10) extends coaxially through the sun gear (10) and the control motor (19) is configured to interacting with the sun gear by way of a gear (15), wherein the control unit is fitted between the drive shaft (4) and a driving wheel (13) so that the drive shaft (4) interacts directly with the internal gear (8) and the driving wheel (13) interacts directly with the planet wheels (9).

Regarding claim 15, APA shows the vehicle being an articulated truck.

9. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Schreiner (US 4,393,952) as applied to claims 1, 8 and 10 above, and further in view of Chamberlain (US 4,186,626).

APA does not show the driving wheels (18a, 18b) having a hub reduction. A hub reduction arranged in a wheel hub is old and well known in the art. For example, Chamberlain shows a wheel hub assembly including a hub reduction (94, 122, 106), wherein the axle shaft (48) interacts directly with the sun gear (106) of the hub reduction.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a hub reduction in the driving wheel of APA in view of Chamberlain since having a hub reduction in a driving wheel is old and well known in the art. Further the wheel hub of Chamberlain permits stowage of, or removal of the drive shaft axle, whereby the vehicle can be more easily moved or towed without the overall drive mechanism rotating (col. 1, lines 15-18). Note that the modified vehicle would have all the features recited in claims 11 and 13.

10. Claims 1, 2, 4, 5, 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Hamada et al. (US 6,325,736).

APA shows a vehicle having at least two pair of driving wheels (16a, 16b, 18a, 18b) of which one pair (18a, 18b) is steerable in relation to the longitudinal axis of the vehicle, the vehicle comprising a first transmission branch (the drive of the differential of the wheel axle 16, inherent) connected to a second transmission branch (the drive of the differential of the wheel axle 18, inherent) by way of a fork (connection at 13), the first transmission branch directly connected to a drive shaft (e.g., engine/transmission output shaft, inherent), and the second transmission branch connected to the fork.

APA does not show a control unit provided with control means for varying the transmission ratio in the second branch and each of a plurality of steerable wheels being connected to the drive shaft via a separated control unit.

Hamada et al show a vehicle (see Fig. 10) having a pair of steerable driving wheels (5R, 5L) (see col. 15, lines 27-32), a transmission branch (7) including a control unit (14) provided

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with control means (15R, 15L, 9R, 9L) for varying the transmission ratio in the transmission branch and each of the steerable wheels via a separated control unit (9R, 9L).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the second transmission branch of APA by the transmission branch of Hamada et al so that the value of the difference rotation between the left and right wheels is controlled to become a value which fits to the target cornering radius at the time of cornering control (col. 14, lines 4-10).

Regarding claims 2, 4, 5 and 8, Hamada et al show the control unit utilizing a steering lock angle of the vehicle as a control parameter, the control unit comprising a control motor (9R) configured to influence the transmission ratio of a planetary gear (26R), the planetary gear set comprising a sun gear (80), a planet carrier (83) with planet wheels (82) and internal gear (81), the control motor (9R) connected to the sun gear (80), wherein the connection (82, 83) between the internal gear (81) and the sun gear (80) extends coaxially through the sun gear (80) and the control motor (9R) is configured to interacting with the sun gear by way of a gear (the gear on the motor shaft).

Regarding claim 15, APA shows the vehicle being an articulated truck.

Allowable Subject Matter

11. Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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Cited Prior Art

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Puets et al.'751, Hender'284, Aoki'737, and Chung et al.'054 which each shows an axle drive including a differential for a driving wheel.

Communication

13. Submission of your response by facsimile transmission is encouraged. The fax phone numbers for the organization where this application or proceeding is assigned are **(703) 872-9306**. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see M.P.E.P. 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check. Responses submitted by facsimile transmission should include a Certificate of Transmission (M.P.E.P. 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to
the Patent and Trademark Office on _____

(Date)

Typed or printed name of person signing this certificate:

(Signature)


If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and M.P.E.P. 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ha D. Ho whose telephone number is **571-272-7091**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on **571-272-7095**.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HDH
(703) 305-0738
May 12, 2005


HAHO
PRIMARY EXAMINER
Art Unit 3681 5/12/05